



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,634	07/31/2003	Michael A. Pate	200209409-1	2770
22879	7590	04/11/2005	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			CRUZ, MAGDA	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,634

Applicant(s)

PATE ET AL.

Examiner

Magda Cruz

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
4a) Of the above claim(s) 18-34 and 47-51 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7, 13-15, 17, 35-40 and 46 is/are rejected.
7) ☒ Claim(s) 1, 5, 8-12, 16 and 41-45 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07/31/2003.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (i.e. claims 1-12, 13-16 and 35-45) in the reply filed on 02/08/2005 is acknowledged.
2. Claims 18-34 and 47-51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/08/2005.
3. With respect to the restriction requirement filed on 01/27/2005, claims 17 and 46 should have been grouped with invention I, drawn to an electronic device. Therefore, examiner has examined those claims in this Office Action.

Claim Objections

4. Claim 1 is objected to because of the following informalities: the phrase "substantially stationary light bands" renders the claim to be indefinite. It is unclear what the applicant means by "substantially stationary light bands".

Appropriate correction is required.

5. Claim 5 is objected to because of the following informalities: there is insufficient antecedent basis for the limitation "imaging elements" in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-16 and 35-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Kiser et al.

Kiser et al. (US 2003/0228154 A1) discloses:

- Regarding claim 1, display device (5) comprising: a spatial light modulator (200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2) forming a plurality of image regions (210a, 210b, 210c); and a light generator (120) configured to direct a different one of a plurality of substantially stationary light bands (R, G, B) onto each of the plurality of image regions (210a, 210b, 210c).
- Regarding claim 2, the plurality of light bands (R, G, B) includes at least one of a red light band, a green light band, and a blue light band (page 4, paragraph 0055, lines 5-7).
- Regarding claim 3, the light generator (120) is configured to direct the plurality of bands of light (R, G, B) onto image regions (210a, 210b, 210c)

having at least one aligned edge (i.e. border of elements 210a, 210b, 210c).

- Regarding claim 4, the image regions (210a, 210b, 210c) are of the same size (see Figure 2).
- Regarding claim 5, the array of imaging elements (520a, 520b, 520c) has a generally rectangular shape with adjacent sides having relative sizes (see Figure 5), and the image regions (510a, 510b, 510c, 510d) have generally rectangular shapes (see Figure 5) with adjacent sides having relative sizes different than the relative sizes of the array of imaging elements (520a, 520b, 520c). This refers to the embodiment disclosed on page 6, paragraph 0069, which also meets the limitations of the claims that claim 5 is dependent^{upon}.
- Regarding claim 6, a controller (140) configured to control modulation of the spatial light modulator (200) appropriate to produce a separate image in each image region (210a, 210b, 210c).
- Regarding claim 7, the light bands (122) are of different colors (R, G, B), and the controller (140) is configured to control modulation of the spatial light modulator (200) appropriate to produce differently colored component images (202) of a composite image (page 4, paragraph 0061, lines 1-12).
- Regarding claim 13, a display device (5) comprising a light source (110) configured to produce multi-spectral light (112); a spatial light modulator (200) configured to modulate light received in a plurality of regions

according to component images of a received composite image (page 3, paragraph 0055); an optical separator (120) configured to separate multi-spectral light (112) into a plurality of colored light bands (122), and to direct the light bands (122) onto the regions (210a, 210b, 210c) of the spatial light modulator (200), and an optical combiner (130) configured to combine the modulated light bands (202) into a composite light band (132).

- Regarding claim 14, the projection optics (page 3, paragraph 0052, lines 1-7) is configured to direct the composite light band toward a display medium (20).
- Regarding claim 15, a controller (140) configured to control modulation of the spatial light modulator (200) appropriate to produce differently colored component images (202) of a composite image.
- Regarding claim 17, an electronic device (5) comprising: a spatial light modulator (200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2), and a light generator (120) configured to direct a plurality of separate non-scanning light beams (i.e. color components) onto respective different regions of the array of modulating elements (page 3, paragraph 0055, lines 1-2).
- Regarding claim 35, a display device (5) comprising means for directing a plurality of bands of light (R, G, B) onto separate fixed image regions of an array of modulating elements, and means for modulating the image

regions of the array of modulating elements according to different images (page 4, paragraph 0060).

- Regarding claim 36, means for controlling modulation of the array of modulating elements (page 3, paragraph 0055, lines 1-2) appropriate to produce an image in each image region (page 3, paragraph 0055, lines 3-8).
- Regarding claim 37, means for directing a plurality of bands of light (122) is further for directing a plurality of bands of light of different colors (page 4, paragraph 0055, lines 5-7), and the means for controlling modulation of the array of modulating elements (page 3, paragraph 0055, lines 1-2) is further for controlling modulation of the array of modulating elements appropriate to produce differently colored component images (202) of a composite image in the image regions of the array of modulating elements (page 4, paragraph 0055, lines 7-14).
- Regarding claim 38, a spatial light modulator (200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2) configured to spatially modulate incident light (page 3, paragraph 0055, lines 1-5).
- Regarding claim 39, the controller (140) is further configured to control modulation of the spatial light modulator (200) appropriate to produce a component image (202), in each of the plurality of image regions (210a, 210b, 210c), of a received composite image (page 4, paragraphs 0060 and 0061).

- Regarding claim 40, the component images (202) correspond images of different colors, and the controller (140) is configured to control modulation of the spatial light modulator (200) appropriate to produce differently colored component images (R, G, B) that when combined form a composite colored image (132).
- Regarding claim 46, an electronic device (5) comprising: a spatial light modulator (200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2) configured to spatially modulate incident light (page 3, paragraph 3-13), a controller (140) configured to control modulation of the spatial light modulator (200) appropriate to produce a component image (202) in each of a plurality of separate image regions of the array of modulating elements (page 3, paragraph 0055, lines 1-2) according to received image information, and an optical combiner (130) configured to combine the component images (202) into a composite image (132).

Allowable Subject Matter

8. Claims 8-12, 16 and 41-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither shows nor suggests:

- a. Regarding claims 8, 16 and 41, a controller including a spatial image separator configured to assign received image information to a corresponding one of the image regions.
- b. Regarding claims 9 and 42, a second sub-frame being spatially offset from the first sub-frame, and a display device adapted to alternately display the first sub-frame in a first position and the second sub-frame in a second position spatially offset from the first position.

Each of said recited elements in combination as claimed cannot be made inherent or obvious by the prior art of record.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Woodgate et al. (US Patent Number 6,595,648 B1) discloses a projection display device for displaying enlarged images from conventional direct view spatial light modulators.

Johnson et al. (US Patent Number 6,707,516 B1) teaches a display system comprising a frame buffer style spatial light modulator.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-

2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Handwritten signature of Melissa Jan Kova.

Magda Cruz
Patent Examiner
April 7, 2005